death or get drowned or killed right away or a little later on.

That he underwent great inconveniences and sufferings goes without saying. Such a trip can not be made in a tropical country without them; but it is questionable whether readers should be bothered with his mosquitoes, his ants, his cattle ticks, and his runaway mules.

The photographs are the one redeeming feature of the book.   J. C. BRANNER

A Text-book on the Teaching of Arithmetic. By A. W. STAMPER. New York, American Book Co. Pp. 1 + 284, including bibliography and index.

This book is a real contribution to pedagogy, for although its author disavows novelty in theory and completeness in scope, he has come nearer to writing a text-book in the teaching of arithmetic for beginners than has any other writer. It differs from the other excellent works on the same subject, such as those listed in the author's bibliography, in that it gives more space to instruction in the details of method and in class-room practise than to inspirational matter. It summarizes and applies the results of pedagogical research instead of dwelling upon their origin. In comparison with other books on the teaching of arithmetic, it is a manual of method rather than a reference book for the teacher's professional library.

As to its fitness for this purpose, it covers well the courses in the teaching of arithmetic given in our better normal schools. It is a well-rounded and well-balanced treatment of school. It is in general accurate as to fact, and sound in doctrine. The author has profited by his labors at Teachers College, Columbia University, particularly by his access to the great collection of original arithmetical works gathered there. These sources, supplemented by the accurate digests and classifications, and the collections of related mathematical apparatus, constitute the most significant assemblage of historical material on the subject of arithmetic to be found anywhere in the world.

But with all this the book is a chart of the beaten path. It will serve to help the laggards rather than to blaze a new trail. To some the book will seem to be written wrong end to. As it stands the order of discussion is: Origin (Chap. I.), Logic (Chap. II.), Subject Matter (Chaps. III.-VI.), Method (Chaps. VIII.-X.), Purpose (Chap. XI.). But among these topics why should not the last be first? The author makes aim or purpose the first consideration in his typical method lessons, and states (pp. 248-249) the controlling aim in the teaching of arithmetic. If the discussion of the selection, presentation and study of subject matter had been controlled from the start by the real *purpose*, it would not have greatly modified the conclusions of this volume. But it would have thrown a flood of light on why we are told to teach or not to teach certain things, and why we are told to teach in a prescribed way. The subject, if approached from this stand-point, would necessitate discussing, to a greater extent than the author does, the attitude of the pupil, who, after all, is the first consideration, the chief beneficiary and the sole legatee in the teaching of arithmetic.

The following more specific references may be of value: Pp. 9-18: A pragmatic treatment such as indicated above would relegate these meager nine pages of history to subordinate notes under related topics in later chapters. P. 18, questions 5 and 6, are of little value. P. 20: The *working* definitions explained at the bottom of the page should be emphasized as the kind of most value in arithmetic. P. 29: It would help the teacher, if the author had admitted that counting is measuring in the broadest sense. P. 30: the last paragraph could be strengthened thus: To the statement, " The multiplicand and the product being concrete," add " and of the same kind." Also to the statement, " The dividend is always concrete," should be added, " if either of the other terms are." P. 43: Young teachers may be led to overvalue work in artificial scales. P. 44: The expression, " When the first nine," would better be " when the column at the left." P. 51: The teaching of casting out nines is of doubtful value as a pratical check required in the universal course of study. P. 58: Re-

mainders should be taught before formal division. Thus, when the pupil knows that four sevens are twenty-eight, he should learn that thirty is four sevens and two units remaining. P. 63: The Euclidean method of greatest common divisor is referred to without explanation. P. 74, last paragraph of the example: The reason " Since we get the same answer . . ." is not sufficient and is inexcusable because the real reason is so apparent. In the process of reducing the fractions to their common denominators the numbers 8 and 9 are actually found thus, 4×2, 3×3. P. 99: This is too advanced to be of practical value in the grades. P. 101, last paragraph: Although the author has good precedent for this, it is surely a perversion to teach that " hundredths " and " per cent." are interchangeable. For if so, then 7.07 per cent. could read seven and seven per cent. per cent., an unfortunate confusion. Per cent. is primarily a rate per hundred, and its presentation as such would not exclude the desirable things in the author's subsequent treatment. P. 110 (*a*): " Times greater than " is a loose use of language for " times as great," probably due to the author's effort to carry out an analogy to percentage. Pp. 109–111: This correspondence between percentage and the processes with integers and fractions is not sufficiently significant to warrant its use in the class-room, and is of little value to the teacher. Pp. 126–135: The explanations on these pages are rather complicated, and, taken as a whole, are not teachable in the class-room. It would be better to point out for the teacher exactly the form to be used. Pp. 148–152: One is disappointed not to find a reference to the modern partial-payment problem most frequently met; namely, the one in which limited payments are accepted at stated intervals, usually at interest dates. Pp. 180–181: An expansion and illustration of this topic would be of greater value than the familiar material on pp. 172–175. Chapters VIII.–IX., pp. 196–233, are Herbartian and discuss the teaching process from the standpoint of the subject, instead of from the standpoint of the pupil. Pp. 200–201: The teacher's aim is relatively unimportant. It is the pupil's purpose that controls

his activity. Consequently he must have a stronger motive than that suggested at the end of p. 201. In this connection, compare pp. 201 and 203 with the more helpful suggestions on pp. 212 and 218. Pp. 236–242: these lists impress one as more complete than significant. The points made need classifying. The young teacher should be told which of these are most important. It is better to study a few essentials of a model lesson, than to attempt so ambitious a list. Pp. 243–277: Chapter XI. is wholly inadequate, especially in its treatment of the curriculum. The vital question to-day is not, " How shall we parcel out the body of arithmetical science?" but, " What live issues, appreciated by children, shall we choose as the core of instruction?" The curriculum must precede method, hence the prospective teacher should be instructed to observe this order in teaching. Pp. 278–280: Since many of our normal students take one or two modern languages, a few references to foreign works on the teaching of arithmetic might be helpful, particularly the German works of Unger and Knilling.

The foregoing criticisms should not be taken as the estimate of the book. The volume is packed with good suggestions to teachers, and will take its place among the most useful half-dozen available books on the subject.

LAMBERT L. JACKSON

MONTCLAIR, N. J.,
January 3, 1914

Guide to the Study of Animal Ecology. By CHAS. C. ADAMS. New York, Macmillan. 183 pages.

This book is essentially a bibliographical and methodological manual for field students in ecology. As is stated in the preface the primary emphasis is upon ecological survey work. Thus instrumental measurement of the environment and experimental study are elaborated in the literature cited. The following chapter headings appear: Aim, Content and Point of View; The Value and Method of Ecological Surveys; Field Study; The Collection, Preservation and Determination of Specimens; Scientific Technique; Sources of Information on